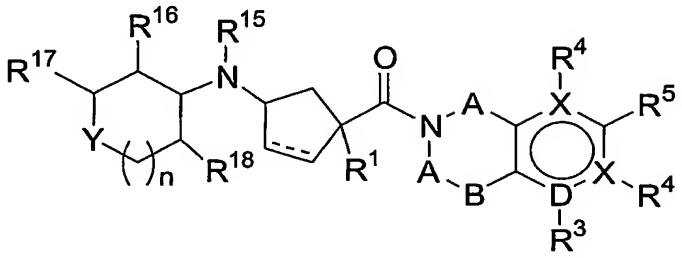
What is claimed is:

1. A compound of formula I:



I

wherein:

A, B, X, and D are defined as follows:

A is independently selected from the group consisting of -CR^8R^8-, -CO-, -NR^8- and –O-,

where R^8 is independently selected from hydrogen, C_{1-6}alkyl, C_{0-4}alkylCOR^{11} and

where R^{11} is selected from the group consisting of hydroxy, hydrogen, C_{1-6} alkyl, -O-C_{1-6}alkyl, benzyl, phenyl and C_{3-6} cycloalkyl, where said alkyl, phenyl, benzyl, and cycloalkyl groups are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, C_{1-3}alkyl, C_{1-3}alkoxy, -CO_2H, -CO_2-C_{1-6} alkyl and trifluoromethyl;

B is selected from the group consisting of -CR^2R^2-, -O-, -SO-, -SO_2-, -NSO_2R^{14}-, -$NCOR^{13}$-, -$NCONR^{12}R^{12}$- and -CO-,

where R^2 is independently selected from the group consisting of hydrogen, C_{1-6}alkyl, fluoro, hydroxy, heterocycle, -$NHCOR^{13}$, -$NHSO_2R^{14}$, and -O-C_{1-6}alkyl,

where R^{12} is selected from the group consisting of hydrogen, C_{1-6} alkyl, benzyl and phenyl, and C_{3-6} cycloalkyl

where said alkyl, phenyl, benzyl, and cycloalkyl groups are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, C_{1-3}alkyl, C_{1-3}alkoxy, $-CO_2H$, $-CO_2-C_{1-6}$ alkyl, and trifluoromethyl,

where R^{13} is selected from the group consisting of hydrogen, C_{1-6} alkyl, $-O-C_{1-6}$alkyl, benzyl, phenyl and C_{3-6} cycloalkyl where said alkyl, phenyl, benzyl, and cycloalkyl groups are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, C_{1-3}alkyl, C_{1-3}alkoxy, $-CO_2H$, $-CO_2-C_{1-6}$ alkyl and trifluoromethyl,

where R^{14} is selected from the group consisting of hydroxy, C_{1-6} alkyl, $-O-C_{1-6}$alkyl, benzyl, phenyl and C_{3-6} cycloalkyl where said alkyl, phenyl, benzyl, and cycloalkyl groups are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, C_{1-3}alkyl, C_{1-3}alkoxy, $-CO_2H$, $-CO_2-C_{1-6}$ alkyl and trifluoromethyl, and

where said heterocycle is unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, $-COR^{11}$, C_{1-3}alkyl, C_{1-3}alkoxy and trifluoromethyl;

X is carbon or nitrogen;

D is carbon, or when one of B, X and D is not CR^2R^2, carbon, and carbon, respectively, D is a carbon or nitrogen;

provided that A, B, X, and D cannot be simultaneously CR^8R^8, CR^2R^2, CR^4, and CR^3, respectively, and that D can only be nitrogen when at least one of A, B, or X is not CR^8R^8, CR^2R^2, or CR^4, respectively, where R^8, R^2, R^4, and R^3 are defined below;

Y is selected from the group consisting of -O-, $-NR^{12}-$, -S-, -SO-, $-SO_2-$, and $-CR^{11}R^{11}-$, $-NSO_2R^{14}-$, $-NCOR^{13}-$, $-NCONR^{12}R^{12}-$, $-CR^{11}COR^{11}-$, $-CR^{11}OCOR^{13}-$ and -CO-;

R^1 is selected from the group consisting of hydrogen, -C_{1-6}alkyl, -C_{0-6}alkyl-O-C_{1-6}alkyl, -C_{0-6}alkyl-S-C_{1-6}alkyl, -(C_{0-6}alkyl)-(C_{3-7}cycloalkyl)-(C_{0-6}alkyl), hydroxy, heterocycle, -CN, -$NR^{12}R^{12}$, -$NR^{12}COR^{13}$, -$NR^{12}SO_2R^{14}$, -COR^{11}, -$CONR^{12}R^{12}$, and phenyl,

where said alkyl and said cycloalkyl are unsubstituted or substituted with 1-7 substituents where said substituents are independently selected from the group consisting of:

(a) halo,
(b) hydroxy,
(c) -O-C_{1-3}alkyl,
(d) trifluoromethyl,
(f) C_{1-3}alkyl,
(g) -O-C_{1-3}alkyl,
(h) -COR^{11},
(i) -SO_2R^{14},
(j) -$NHCOCH_3$,
(k) -$NHSO_2CH_3$,
(l) -heterocycle,
(m) =O, and
(n) -CN, and

where said phenyl and heterocycle are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, -COR^{11}, C_{1-3}alkyl, C_{1-3}alkoxy and trifluoromethyl;

R^3 is selected from the group consisting of:

(a) hydrogen,
(b) C_{1-3}alkyl, optionally substituted with 1-3 fluoro,
(c) -O-C_{1-3}alkyl, optionally substituted with 1-3 fluoro,
(d) hydroxy,
(e) chloro,
(f) fluoro,
(g) bromo,
(h) phenyl,
(i) heterocycle and
(j) nothing, O, or hydrogen, when the Z bonded to R^3 is nitrogen);

R^4 is selected from the group consisting of:

(a) hydrogen,

(b) C_{1-3}alkyl, optionally substituted with 1-3 fluoro,
(c) -O-C_{1-3}alkyl, optionally substituted with 1-3 fluoro,
(d) hydroxy,
(e) chloro,
(f) fluoro,
(g) bromo,
(h) phenyl,
(i) heterocycle, and
(j) nothing, O, or hydrogen, when the Z bonded to R^4 is nitrogen;

R^5 is selected from the group consisting of:

(a) C_{1-6}alkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro and optionally substituted with hydroxyl,
(b) -O-C_{1-6}alkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,
(c) -CO-C_{1-6}alkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,
(d) -S-C_{1-6}alkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,
(e) -pyridyl, which is unsubstituted or substituted with one or more substituents selected from the group consisting of: halo, trifluoromethyl, C_{1-4}alkyl, and COR^{11},
(f) fluoro,
(g) chloro,
(h) bromo,
(i) -C_{4-6}cycloalkyl,
(j) -O-C_{4-6}cycloalkyl,
(k) phenyl, which is unsubstituted or substituted with one or more substituents selected from the group consisting of : halo, trifluoromethyl, C_{1-4}alkyl, and COR^{11},
(l) -O-phenyl, which is unsubstituted or substituted with one or more substituents selected from the group consisting of : halo, trifluoromethyl, C_{1-4}alkyl, and COR^{11},
(m) -C_{3-6}cycloalkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,
(n) -O-C_{3-6}cycloalkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,
(o) -heterocycle,
(p) -CN and
(q) $-COR^{11}$;

R^{15} is selected from the group consisting of:

(a) hydrogen and
(b) C_{1-6}alkyl, which is unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, $-CO_2H$, $-CO_2C_{1-6}$alkyl, and $-O-C_{1-3}$alkyl;

R^{16} is selected from the group consisting of:

(a) hydrogen,
(b) C_{1-6}alkyl, where alkyl is unsubstituted or substituted with 1-6 substituents where the substituents are chosen from the group: fluoro, C_{1-3}alkoxy, hydroxy, $-COR^{11}$,
(c) fluoro,
(d) $-O-C_{1-3}$alkyl, where alkyl is unsubstituted or substituted with 1-3 fluoro, and
(e) C_{3-6} cycloalkyl,
(f) $-O-C_{3-6}$cycloalkyl,
(g) hydroxy,
(h) $-COR^{11}$ and
(i) $-OCOR^{13}$,
or R^{15} and R^{16} may be joined together via a C_{2-4}alkyl or a C_{0-2}alkyl-O-C_{1-3}alkyl chain to form a 5-7 membered ring;

R^{17} is selected from the group consisting of:

(a) hydrogen,
(b) C_{1-6}alkyl, where alkyl may be unsubstituted or substituted with 1-6 substituents where said substituents are chosen from the group: fluoro, C_{1-3}alkoxy, hydroxy, $-COR^{11}$,
(c) COR^{11},
(d) hydroxy, and
(e) $-O-C_{1-6}$alkyl, where alkyl may be unsubstituted or substituted with 1-6 substituents where said substituents are chosen from the group: fluoro, C_{1-3}alkoxy, hydroxy, $-COR^{11}$,
or R^{16} and R^{17} are joined together by a C_{1-4}alkyl chain or a C_{0-3}alkyl-O-C_{0-3}alkyl chain to form a 3-6 membered ring;

R^{18} is selected from the group consisting of:

(a) hydrogen, and
(b) C_{1-6}alkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,

(c) fluoro,
(d) -O-C_{3-6}cycloalkyl, and
(e) -O-C_{1-3}alkyl, where alkyl is unsubstituted or substituted with 1-6 fluoro,

or R^{16} and R^{18} are joined together by a C_{2-3}alkyl chain to form a 5-6 membered ring, where said alkyl are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, -COR^{11}, C_{1-3}alkyl, and C_{1-3}alkoxy,

or R^{16} and R^{18} are joined together by a C_{1-2}alkyl-O-C_{1-2}alkyl chain to form a 6-8 membered ring, where said alkyl are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, -COR^{11}, C_{1-3}alkyl, and C_{1-3}alkoxy,

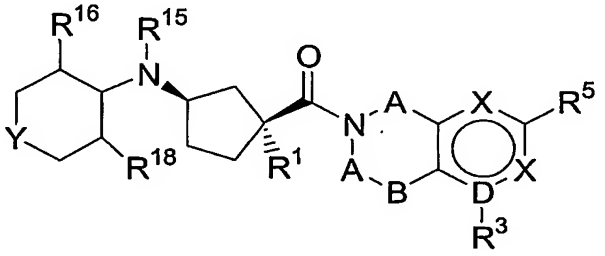
or R^{16} and R^{18} are joined together by a –O-C_{1-2}alkyl-O-chain to form a 6-7 membered ring, where said alkyl are unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of halo, hydroxy, -COR^{11}, C_{1-3}alkyl, and C_{1-3}alkoxy;

n is selected from 0, 1 and 2;

the dashed line represents a single or a double bond;

and pharmaceutically acceptable salts thereof and individual diastereomers thereof.

2. A compound of Claim 1 of formula Ia:

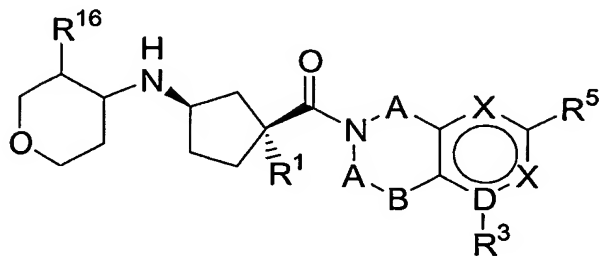


Ia

wherein R^1, R^3, R^5, R^{15}, R^{16}, R^{18}, A, B, D, X, and Y are defined in Claim 1,

and pharmaceutically acceptable salts and individual diastereomers thereof.

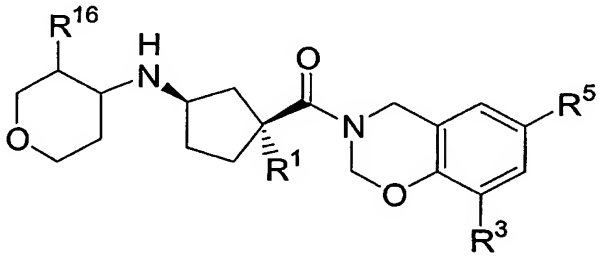
3. A compound of Claim 1 of formula Ib:



Ib

wherein R^1, R^3, R^5, R^{16}, A, B, D, and X are defined in Claim 1, and pharmaceutically acceptable salts and individual diastereomers thereof.

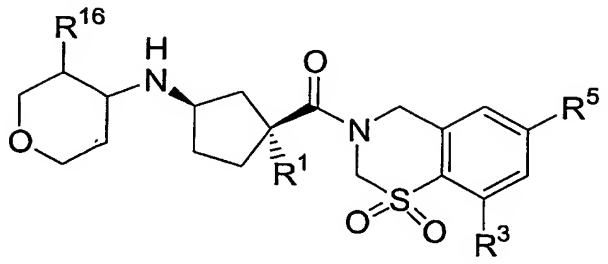
4. A compound of Claim 1 of formula Ic:



Ic

wherein R^1, R^3, R^5 and R^{16} are defined in Claim 1, and pharmaceutically acceptable salts and individual diastereomers thereof.

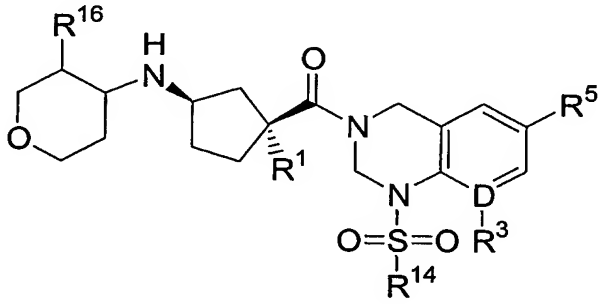
5. A compound of Claim 1 of formula Id:



Id

wherein R^3, R^5, and R^{16} are defined in Claim 1 and pharmaceutically acceptable salts and individual diastereomers thereof.

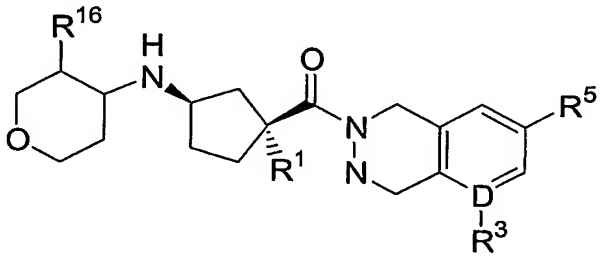
6. A compound of Claim 1 of formula Ie:



Ie

wherein R^3, R^5, R^{16}, and D are defined in Claim 1 and pharmaceutically acceptable salts and individual diastereomers thereof.

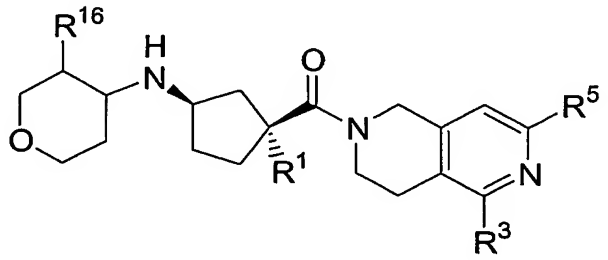
7. A compound of Claim 1 of formula If:



If

wherein R^3, R^5, R^{16}, and D are defined in Claim 1 and pharmaceutically acceptable salts and individual diastereomers thereof.

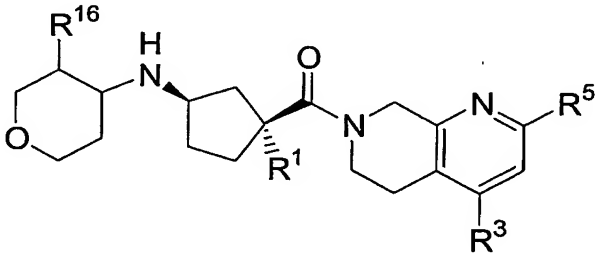
8. A compound of Claim 1 of formula Ig:



Ig

wherein R^3, R^5, and R^{16} are defined in Claim 1 and pharmaceutically acceptable salts and individual diastereomers thereof.

9. A compound of Claim 1 of formula Ih:



Ih

wherein R^3, R^5, and R^{16} are defined in Claim 1 and pharmaceutically acceptable salts and individual diastereomers thereof.

10. A compound of Claim 1 wherein Y is selected from the group consisting of: -O-, -CH_2-, -S-, -SO-, and -SO_2-.

11. A compound of Claim 1 wherein R^1 is selected from the group consisting of

(1) -C_{1-6}alkyl, which is unsubstituted or substituted with 1-6 substituents where said substituents are independently selected from the group consisting of:
   (a) halo,
   (b) hydroxy,
   (c) -O-C_{1-3}alkyl,
   (d) trifluoromethyl and
   (e) -COR^{11},

(2) -C_{0-6}alkyl-O-C_{1-6}alkyl-, which is unsubstituted or substituted with 1-6 substituents where said substituents are independently selected from the group consisting of
   (a) halo,
   (b) trifluoromethyl and
   (c) -COR^{11},

(3) -(C_{3-5}cycloalkyl)-(C_{0-6}alkyl), which is unsubstituted or substituted with 1-7 substituents where said substituents are independently selected from the group consisting of
   (a) halo,
   (b) hydroxy,
   (c) -O-C_{1-3}alkyl,
   (d) trifluoromethyl and
   (e) -COR^{11}, and

(4) phenyl or heterocycle which is unsubstituted or substituted with 1-3 substituents where said substituents are independently selected from the group consisting of
   (a) halo,
   (b) hydroxy,
   (c) -O-C_{1-3}alkyl,
   (d) trifluoromethyl, and
   (e) -COR^{11}.

12. A compound of Claim 11 wherein R^1 is C_{1-6}alkyl which is unsubstituted or substituted with 1-5 substituents where said substituents are independently selected from the group consisting of:

   (a) hydroxy, and
   (b) fluoro.

13. A compound of Claim 12 wherein R^1 is selected from the group consisting of:

(a) isopropyl,
(b) -CH(OH)CH_3, and
(c) -CH_2CF_3.

14. A compound of Claim 1 wherein D is nitrogen and R^3 is nothing, hydrogen, or oxygen.

15. A compound of Claim 14 wherein D is nitrogen and R^3 is nothing or hydrogen.

16. A compound of Claim 15 wherein D is nitrogen and R^3 is nothing.

17. A compound of Claim 1 wherein D is carbon and R^3 is selected from:

(a) hydrogen
(b) halo
(c) hydroxy
(d) C_{1-3}alkyl, where said alkyl is unsubstituted or substituted with 1-6 substituents independently selected from the group consisting of fluoro, and hydroxy,
(e) -COR^{11},
(f) -$CONR^{12}R^{12}$,
(g) -heterocycle,
(h) -NR^{12}-SO_2-$NR^{12}R^{12}$,
(i) -NR^{12}-SO_2-R^{14},
(j) -SO_2-$NR^{12}R^{12}$,
(k) -nitro and
(l) -NR12R12.

18. A compound of Claim 16 wherein D is carbon and R^3 is selected from the group consisting of:

(a) fluoro,
(b) trifluoromethyl and
(c) hydrogen.

19. A compound of Claim 18 wherein D is carbon and R^3 is
(a) fluoro or
(b) hydrogen.

20. A compound of Claim 1 wherein X is nitrogen and R^4 is absent, hydrogen or oxygen.

21. A compound of Claim 20 wherein X is nitrogen and R^4 is absent.

22. A compound of Claim 20 wherein X is carbon and R^4 is selected from the group consisting of:

(a) hydrogen,
(b) trifluoromethyl and
(c) halo.

23. A compound of Claim 22 wherein X is carbon and R^4 is hydrogen.

24. A compound of Claim 1 wherein R^5 is selected from the group consisting of
(a) C_{1-3}alkyl substituted with 1-6 fluoro,
(b) chloro,
(c) bromo,
(d) -O-phenyl, which is unsubstituted or substituted with one or more substituents selected from the group consisting of: halo and trifluoromethyl,
(e) phenyl, which is unsubstituted or substituted with one or more substituents selected from the group consisting of : halo and trifluoromethyl, and
(f) -O-C_{1-3}alkyl substituted with 1-6 fluoro.

25. A compound of Claim 24 wherein R^5 is selected from the group consisting of:

(a) trifluoromethyl,
(b) trifluoromethoxy,
(c) bromo, and
(d) chloro.

26. A compound of Claim 25 wherein R^5 is selected from trifluoromethyl and trifluoromethoxy.

27. A compound of Claim 1 wherein R^{15} is hydrogen or methyl.

28. A compound of Claim 1 wherein R^{16} is selected from the group consisting of:

(a) hydrogen,
(b) C_{1-3}alkyl, which is unsubstituted or substituted with 1-6 fluoro,
(c) -O-C_{1-3}alkyl,
(d) fluoro, and
(e) hydroxy.

29. A compound of Claim 28 wherein R^{16} is selected from the group consisting of:

(a) hydrogen,
(b) trifluoromethyl,
(c) methyl,
(d) methoxy,
(e) ethoxy,
(f) ethyl,
(g) fluoro, and
(h) hydroxy.

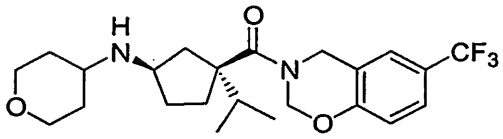
30. A compound of Claim 29 wherein R^{16} is selected from the group consisting of:

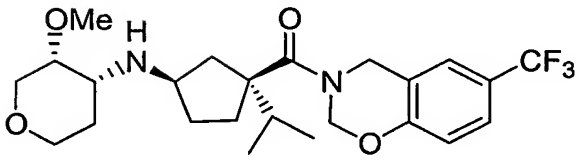
(a) hydrogen,
(b) methyl, and
(c) methoxy.

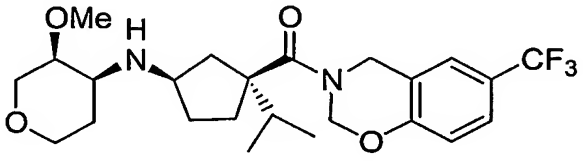
31. A compound of Claim 1 wherein R^{18} is selected from the group consisting of:

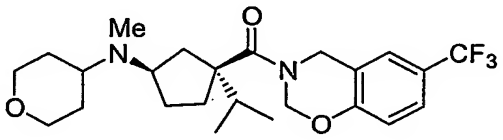
(a) hydrogen,
(b) methyl, and
(c) methoxy.

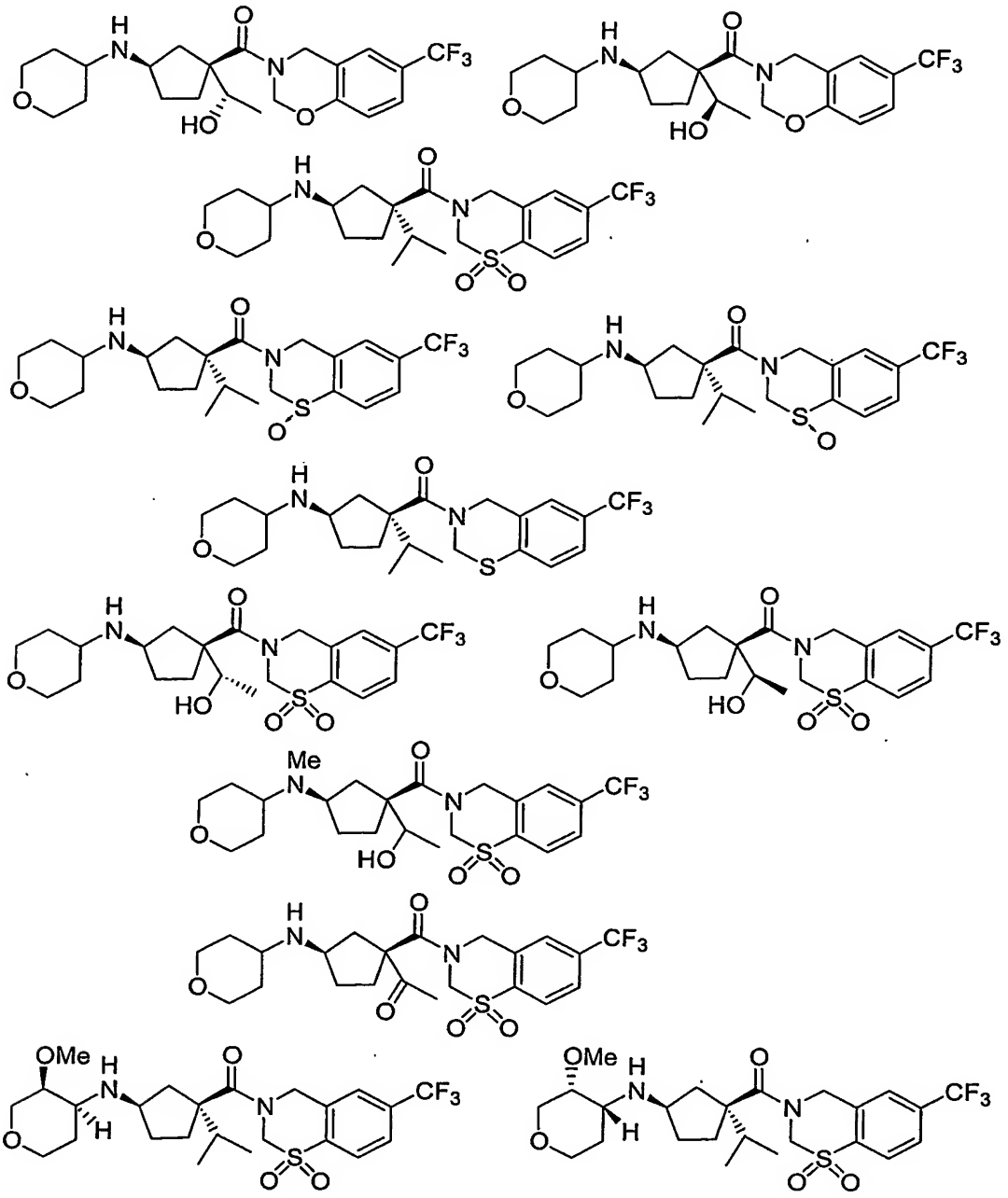
32. One or more compounds of Claim 1 selected from the group consisting of:

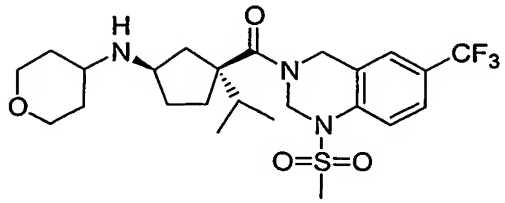


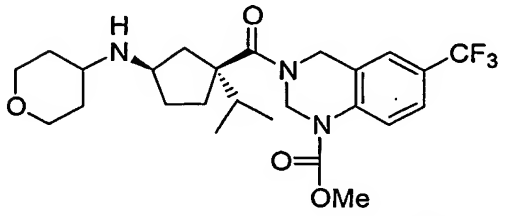


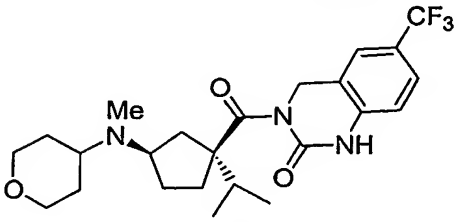


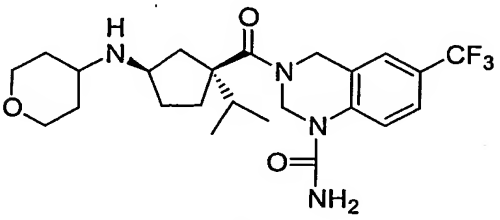


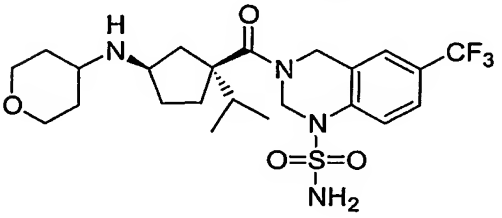


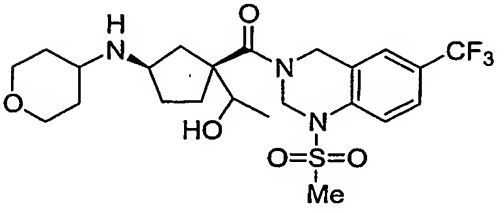


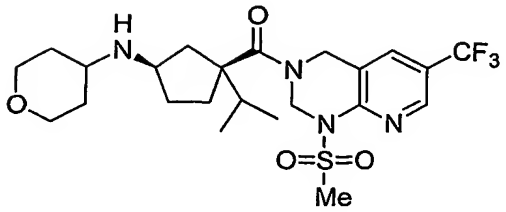


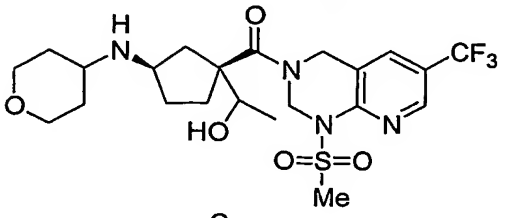


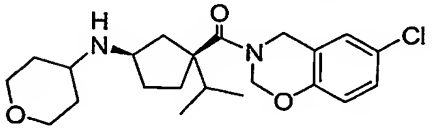


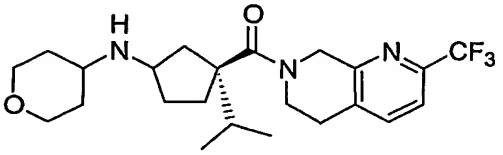


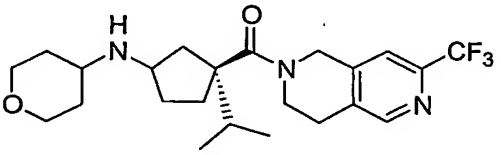


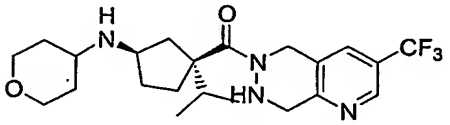


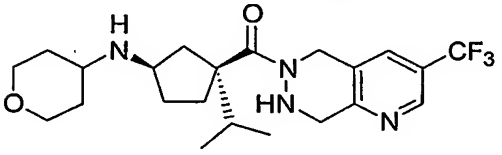


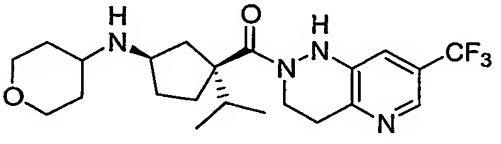












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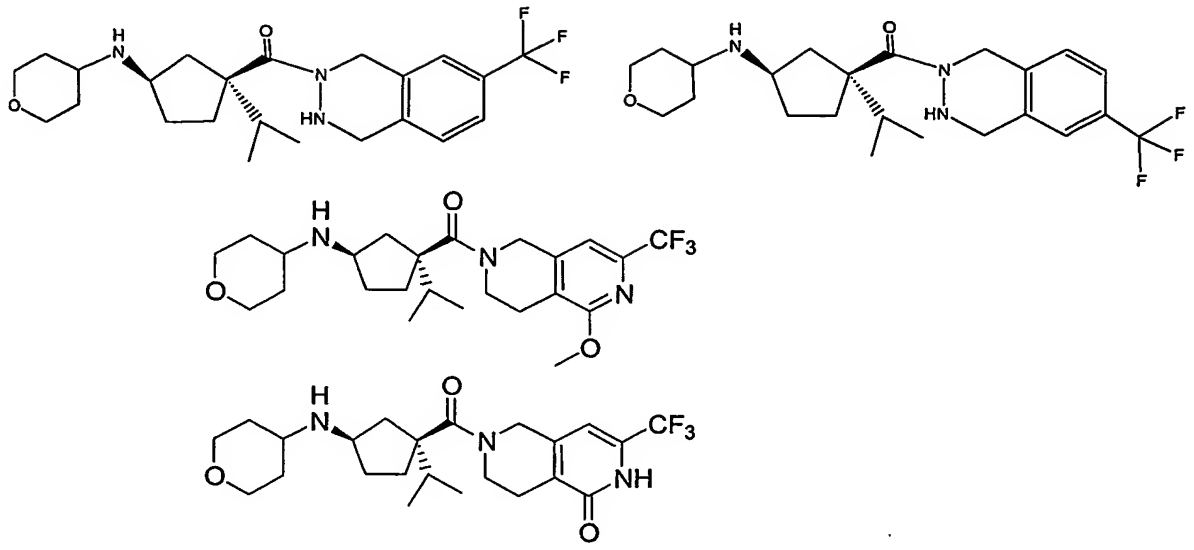

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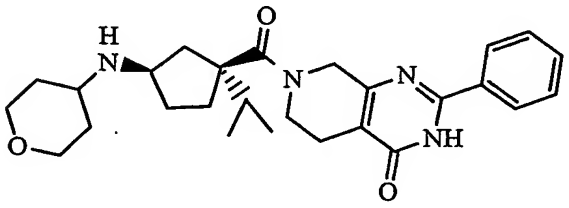

33. A compound of Claim 1 wherein R^{16} and R^{18} are joined together by a $-CH_2CH_2-$ chain or a $-CH_2CH_2CH_2-$ chain to form a cyclopentyl ring or a cyclohexyl ring.

34. A pharmaceutical composition which comprises an inert carrier and a compound of Claim 1.

35. A method for modulation of chemokine receptor activity in a mammal which comprises the administration of an effective amount of the compound of Claim 1.

36. A method for treating, ameliorating, controlling or reducing the risk of an inflammatory and immunoregulatory disorder or disease which comprises the administration to a patient of an effective amount of the compound of Claim 1.

37. A method for treating, ameliorating, controlling or reducing the risk of rheumatoid arthritis which comprises the administration to a patient of an effective amount of the compound of Claim 1.